atgagac gtgcggcgct

ctggctttgg ctctgagg tggcgctgg cctgcagct gcctcccg aaattgtcac cgcaaatgtg cctcctgaag accaagatgg ctctggggac gactcagaca acttctctgg ctcaggcac ggtgctttgc cagatatgac tttgtcacgg cagacacctt ccacttggaa ggatgtgtgg ctcctgacag ctacaccac agctccagaa cccaccagca gggataccga ggccaccctc acctctatcc tgccggctgg agagaagcct gaggagggag agcccgtggccaccgg gcctagggag accacacagc tcccagtcac ccaacaggcc tcaacaggag accacacagc tcccagtcac ccaacaggcc tcaacaggag gcctagggag accacacagc tcccagtcac ccaacaggcc tcaacaggag gcctcaccag gaccttggct cccacgaccag ccacggggat gtgcaacctg gcctccacga gaccttggct cccacagcac ccggccaacc tgaccatcag cctccaaggaggaggagaccttct gtcatcaaag aggttgtgga ggatgaaact accaatcagc ttcctgcaggagggggagacctct ggaggacacaa acttcacctt tgaaacatct ggggagaaca cagctgtggc tggcgtcgag cctgaccttc ggaatcagtc cccagtggat gaaggagcca caggtgcttc tcagggcctt ttggacagga aggaa SEQ ID NO:1

ACCESSION M81785

LOCUS RATSYNDECA 2396 bp mRNA ROD 16-JUL-1992

DEFINITION Rattus norvegicus syndecan mRNA, complete cds.

ACCESSION M81785 NID g207140 KEYWORDS syndecan.

SOURCE Rattus norvegicus Epididymal fat pad cDNA to mRNA.

ORGANISM Rattus norvegicus

Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;

Vertebrata; Eutheria; Rodentia; Sciurognathi; Myomorpha; Muridae;

Murinae; Rattus.

REFERENCE 1 (bases 1 to 2396)

AUTHORS Kojima, T., Shworak, N.W. and Rosenberg, R.D.

TITLE Molecular cloning and expression of two distinct cDNA-encoding

heparan sulfate proteoglycan core proteins from a rat endothelial

cell line

JOURNAL J. Biol. Chem. 267, 4870-4877 (1992)

Fig. 3: Syndecan-2 (human) extracellular domain (J 04621):

```
ggcaggaggg agggagccag aggaaaagaa gaggaggaga aggaggagga cccggggagg
gaggegegge gegggaggag gaggggegea geegeggage eagtggeece gettggaege
getgetetee agataceee ggageteeag eegegeggat egegegetee egeegetetg
cccctaaact tctgccgtag ctccctttca agccagcgaa tttattcctt aaaaccagaa
actgaacete ggcacgggaa aggagteege ggaggageaa aaceaeagea gageaagaag
agetteagag ageageette eeggageace aacteegtgt egggagtgea gaaaceaaca
agtgagagg cgccgcgttc ccggggcgca gctgcgggcg gcgggagcag gcgcaggagg
aggaagcgag cgccccgag ccccgagccc gagtccccga gcctgagccg caatcgctgc
ggtactctgc tccggattcg tgtgcgcggg ctcgccgagc gctgggcagg aggcttcgtt
ttgccctggt tgcaagcagc ggctgggagc agccggtccc tgggggaatat gcggcgcgcg
tggatcctgc tcaccttggg cttggtggcc tgcgtgtcgg cggagtcgag agcagagctg
acatctgata aagacatgta ccttgacaac agctccattg aagaagcttc aggagtgtat
cctattgatg acgatgacta cgcttctgcg tctggctcgg gagctgatga ggatgtagag
agtccagage tgacaacaac tegaceaett ecaaagatae tgttgactag tgetgeteea
aaagtggaaa ccacgacgct gaatatacag aacaagatac ctgctcagac aaagtcacct
gaagaaactg ataaagagaa agttcacctc tctgactcag aaaggaaaat ggacccagcc
gaagaggata caaatgtgta tactgagaaa cactcagaca gtctgtttaa acggacagaa SEQ ID NO:2
```

protein sequence:
GRREGARGKEEEEKEEDPGREARRGRRRGAAAEPVAPLGRAALQ
IPPELQPRGSRAPAALPLNFCRSSLSSQRIYSLKPETEPRHGKGVRGGAKPQQSKKSF
REQPSRSTNSVSGVQKPTSERAPRSRGAAAGGGSRRRRRKRAPPSPEPESPSLSRNRC
GTLLRIRVRGLAERWAGGFVLPWLQAAAGSSRSLGNMRRAWILLTLGLVACVSAESRA
ELTSDKDMYLDNSSIEEASGVYPIDDDDYASASGSGADEDVESPELTTTRPLPKILLT
SAAPKVETTTLNIONKIPAQTKSPEETDKEKVHLSDSERKMDPAEEDTNVYTEKHSDS
LFKRTE SEQ ID NO:3

reference:

ACCESSION J04621

LOCUS HUMHSPGC 3414 bp mRNA PRI 08-NOV-1994
DEFINITION Human heparan sulfate proteoglycan (HSPG) core protein, 3' end.

ACCESSION J04621 NID g184428

KEYWORDS core protein; heparan sulfate proteoglycan.

SOURCE Human fetal lung fibroblast, cDNA to mRNA, clone 48K5.

ORGANISM Homo sapiens

Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo.

REFERENCE 1 (bases 1 to 3414)

AUTHORS Marynen, P., Zhang, J., Cassiman, J.J., Van den Berghe, H. and David, G. TITLE Partial primary structure of the 48- and 90-kilodalton core

proteins of cell surface-associated heparan sulfate proteoglycans of lung fibroblasts. Prediction of an integral membrane domain and evidence for multiple distinct core proteins at the cell surface of

human lung fibroblasts

JOURNAL J. Biol. Chem. 264 (12), 7017-7024 (1989)

Fig. 4: Synd-3 (N-Syndecan) extracellulare domain

gcccccgcgcgctgctgagccgtccttgcggcacgssgatgcccgcggagctgcgcc tegeggtgetgetgetgeteagegecegegeagegetggeteageegtggegeaatg agaactacgagaggccggtggacctggagggctctggggatgatgatccctttggggacg atgaactggatgacatctactcgggctccggctcaggctattttgagcaggagtcagggt tggagacagcggtcagcctcaccacggacacgtccgtcccactgcccaccacggtggccg tgctgcctgtcaccttggtgcagcccatggcaacaccctttgagctgttccccacagagg acacgtcccctgagcaaacaaccagcgtcttgtatatccccaagataacagaagcaccag tgatccccagctggaaaacaaccaccgccagtaccactgccagtgactcccccagtacca tcctgacagaggtgaccacatcacggcttgtcccctccagcacagccaagccgaggtccc tgccaaaaccaagcacttccaggactgcagaacccacggaaaaaagcactgccttgcctt ccagccccaccacgctgccacccacagaagccccccaggtggagccaggggagttgacga cagtcctcgacagtgacctggaagtcccaaccagtagtggccccagcggggacttcgaga tccaggaggaggagacaactcgtcctgagctgggcaatgaggtggtggcagtggtga caccaccagcagcaccggggctgggcaagaatgcagagccggggctcatcgacaacaa SEQ ID NO:4

Reference: ACCESSION M84910 29-NOV-1995 VRT LOCUS CHKSNDCPRO 1372 bp mRNA Chicken syndecan-3 proteoglycan mRNA, complete cds. DEFINITION M84910 ACCESSION g1017461 NID **KEYWORDS** syndecan-3 proteoglycan. Gallus gallus 4-6 day and 10 day forelimb and whole embryo cDNA to SOURCE mRNA. ORGANISM Gallus gallus Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata; Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus. 1 (bases 1 to 1372) REFERENCE Gould, S.E., Upholt, W.B. and Kosher, R.A. **AUTHORS** Syndecan 3: a member of the syndecan family of TITLE membrane-intercalated proteoglycans that is expressed in high amounts at the onset of chicken limb cartilage differentiation Proc. Natl. Acad. Sci. U.S.A. 89 (8), 3271-3275 (1992) JOURNAL 92228766 MEDLINE 2 (bases 1 to 1372) REFERENCE Gould, S.E., Upholt, W.B. and Kosher, R.A. AUTHORS Characterization of chicken syndecan-3 as a heparan sulfate TITLE proteoglycan and its expression during embryogenesis Dev. Biol. 168 (2), 438-451 (1995) JOURNAL

Fig. 5: Syndecan-4 extra-cellular domain from rat: M81786

atgge geetgtetge etgtttgege egetgetget gttgeteete
ggaggtttee eegtegeee aggegagteg attegagaga etgaggteat agaceceag
gaceteetgg aaggeagata ettetetgga geetteegg aegatgaaga egetggggge
ettgageagg actetgaett tgagetgteg ggtteeggag atetagatga eaeggaggag
eeeaggaeet teeetgaggt gattteaeee ttggtgeeae tagataaeea eateeegag
aatgeeeage etggeateeg tgteeeetea gageeeaagg aaetggaaga gaatgaggte
atteeeaaaa gggteeeete egaegtgggg gatgaegatg tgteeaaeaa agtgteeatg
teeageaett eeeagggeag eaacattttt gaaagaaetg ag SEQ ID NO:5

Reference:

ACCESSION M81786

LOCUS RATRYUDOCA 2452 bp mRNA ROD 16-JUL-1992

DEFINITION Rattus norvegicus ryudocan mRNA, complete cds.

ACCESSION M81786 NID g206822 KEYWORDS ryudocan.

SOURCE Rattus norvegicus Epididymal fat pad cDNA to mRNA.

ORGANISM Rattus norvegicus

Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;

Vertebrata; Eutheria; Rodentia; Sciurognathi; Myomorpha; Muridae;

Murinae; Rattus.

REFERENCE 1 (bases 1 to 2452)

AUTHORS Kojima, T., Shworak, N.W. and Rosenberg, R.D.

TITLE Molecular cloning and expression of two distinct cDNA-encoding

heparan sulfate proteoglycan core proteins from a rat endothelial

cell line

JOURNAL J. Biol. Chem. 267, 4870-4877 (1992)

Fig. 6: Glypican-1 (rat) extracellular Domain:

atggag ctccgggccc gaggctggtg gctgctgtgc gcggccgccg cgctagtcgc ctgcgcccgc ggggaccccg ccagcaagag ccggagctgc agcgaagtcc gccagatcta cggggctaag ggctttagcc tgagcgacgt gccccaggca gagatctcgg gagagcacct gcggatctgc ccccagggct acacctgctg caccagtgag atggaggaga acctggccaa ccacagccgg atggagetgg agacegeact ceaegacage ageegtgeee tgeaggetae actggeeace cagctgcatg gcatcgatga ccacttccag cgcctgctga atgactcgga gcgtacactg caggatgett tteeegggge etttggggae etgtaeaege agaacaeteg ggeetteegg gacctgtatg ctgagctgcg tctctactac cgaggggcca acctacacct tgaggagaca ctggccgagt tctgggcacg gctgctggag cgtctcttca agcagctgca ccccagctt ctgctgcccg atgactatct ggactgcctg ggcaagcagg cagaggcact gcggccgttt ggggatgccc ctcgagaact gcgcctgagg gccacccgtg cttttgtggc ggcacgatcc tttgtgcagg gcctgggtgt ggccagtgac gtagtccgaa aggtggccca ggttcctctg gccccagaat gttctcgggc tgtcatgaag ttggtctact gtgcccattg ccggggagtc cctggtgccc ggccctgtcc cgactattgc cgaaatgtgc tcaaaggctg ccttgccaac caggeegace tggatgeega gtggaggaae eteetggaet eeatggtget eateactgae aagttetggg geeegteggg tgeggagaat gteattggea gtgtgeatat gtggetggeg gaggecatea acgeeeteca ggacaacaag gacacaetea cagetaaggt catecaggge tgcggaaacc ccaaggtcaa tccccatggc tctgggcctg aggagaagcg tcgccgtggc aaactggcac tgcaggagaa gtcctccaca ggtactctgg aaaagctggt ctctgaggcc aaggeceage teegagaeat teaggaetae tggateagee teecagggae aetgtgtagt gagaagatgg ccatgagtcc tgccagcgat gaccgctgct ggaatgggat ttccaagggc cggtacctac ctgaggtgat gggtgatggg ctggccaacc agatcaacaa ccctgaagtg gaggtggaca tcaccaagcc ggatatgacc atccggcagc agatcatgca gctcaagatc atgaccaacc gtttacgtgg cgcctacggt ggcaatgatg tggacttcca ggatgccagt gatgacggca gtggctccgg cagcggtggc ggatgcccag atgacgcctg tggccggagg gtcagcaaga agagctccag ctcccggacc cccttgaccc atgccctccc cggcttgtca gaacaggagg gacagaagac ctcg SEQ ID NO:6

Protein sequence:

MELRARGWWLLCAAAALVACARGDPASKSRSCSEVRQIYGAKGF
SLSDVPQAEISGEHLRICPQGYTCCTSEMEENLANHSRMELETALHDSSRALQATLAT
QLHGIDDHFQRLLNDSERTLQDAFPGAFGDLYTQNTRAFRDLYAELRLYYRGANLHLE
ETLAEFWARLLERLFKQLHPQLLLPDDYLDCLGKQAEALRPFGDAPRELRLRATRAFV
AARSFVQGLGVASDVVRKVAQVPLAPECSRAVMKLVYCAHCRGVPGARPCPDYCRNVL
KGCLANQADLDAEWRNLLDSMVLITDKFWGPSGAENVIGSVHMWLAEAINALQDNKDT
LTAKVIQGCGNPKVNPHGSGPEEKRRRGKLALQEKSSTGTLEKLVSEAKAQLRDIQDY
WISLPGTLCSEKMAMSPASDDRCWNGISKGRYLPEVMGDGLANQINNPEVEVDITKPD
MTIRQQIMQLKIMTNRLRGAYGGNDVDFODASDDGSGSGSGGGCPDDACGRRVSKKSS
SSRTPLTHALPGLSEQEGQKTSA
SEQ ID NO:7

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Reference:
```

JOURNAL

ACCESSION L34067 NID g506416 KEYWORDS glypican.

SOURCE Rattus norvegicus (strain New England Deconess Hospital) cDNA to

mRNA.

ORGANISM Rattus norvegicus

Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;

Vertebrata; Eutheria; Rodentia; Sciurognathi; Myomorpha; Muridae;

Murinae; Rattus.

REFERENCE 1 (bases 1 to 1737)

AUTHORS Litwack, E.D., Stipp, C.S., Kumbasar, A. and Lander, A.D. TITLE Neuronal expression of glypican, a cell-surface

glycosylphosphatidylinositol-anchored heparan sulfate proteoglycan,

in the adult rat nervous system
J. Neurosci. 14, 3713-3724 (1994)

Fig.7: Syndecan-1 (rat) transmembrane domain: M81785

gtgct gggaggtgtc attgctggag gcctggtggg SEQ ID NO:8 cctcatcttt gctgtgtgcc tggtggcttt catgctatac

Reference:

ACCESSION

M81785

RATSYNDECA 2396 bp LOCUS

ROD

16-JUL-1992

DEFINITION Rattus norvegicus syndecan mRNA, complete cds. M81785 ACCESSION

g207140 NID

KEYWORDS syndecan.

Rattus norvegicus Epididymal fat pad cDNA to mRNA. SOURCE

ORGANISM Rattus norvegicus

Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;

mRNA

Vertebrata; Eutheria; Rodentia; Sciurognathi; Myomorpha; Muridae;

Murinae; Rattus.

1 (bases 1 to 2396) REFERENCE

Kojima, T., Shworak, N.W. and Rosenberg, R.D. AUTHORS

Molecular cloning and expression of two distinct cDNA-encoding TITLE

heparan sulfate proteoglycan core proteins from a rat endothelial

cell line

J. Biol. Chem. 267, 4870-4877 (1992) JOURNAL

Fig. 8: Syndecan-2 (human) transmembrane domain (J 04621):

gtcctagcag ctgtcattgc tggtggagtt attggctttc tctttgcaat ttttcttatc ctgctgttgg tg SEQ ID NO: 9

protein sequence:

VLAAVIAGGVIGFLFAIFLILLLV

SEQ ID NO:10

reference:

ACCESSION J04621

LOCUS HUMHSPGC 3414 bp mRNA PRI 08-NOV-1994
DEFINITION Human heparan sulfate proteoglycan (HSPG) core protein, 3' end.

ACCESSION J04621 NID g184428

KEYWORDS core protein; heparan sulfate proteoglycan.

SOURCE Human fetal lung fibroblast, cDNA to mRNA, clone 48K5.

ORGANISM Homo sapiens

Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo.

REFERENCE 1 (bases 1 to 3414)

AUTHORS Marynen, P., Zhang, J., Cassiman, J.J., Van den Berghe, H. and David, G.

TITLE Partial primary structure of the 48- and 90-kilodalton core

proteins of cell surface-associated heparan sulfate proteoglycans of lung fibroblasts. Prediction of an integral membrane domain and evidence for multiple distinct core proteins at the cell surface of

human lung fibroblasts

JOURNAL J. Biol. Chem. 264 (12), 7017-7024 (1989)

Fig. 9 : Synd-3 (N-Syndecan) chicken Transmembrane domain

Control of the second

Reference: M84910 ACCESSION LOCUS 1372 bp mRNA VRT 29-NOV-1995 CHKSNDCPRO DEFINITION Chicken syndecan-3 proteoglycan mRNA, complete cds. ACCESSION M84910 g1017461 NID KEYWORDS syndecan-3 proteoglycan. Gallus gallus 4-6 day and 10 day forelimb and whole embryo cDNA to SOURCE mRNA. ORGANISM Gallus gallus Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata; Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus. 1 (bases 1 to 1372) REFERENCE AUTHORS Gould, S.E., Upholt, W.B. and Kosher, R.A. Syndecan 3: a member of the syndecan family of TITLE membrane-intercalated proteoglycans that is expressed in high amounts at the onset of chicken limb cartilage differentiation Proc. Natl. Acad. Sci. U.S.A. 89 (8), 3271-3275 (1992) JOURNAL 92228766 MEDLINE

Characterization of chicken syndecan-3 as a heparan sulfate

proteoglycan and its expression during embryogenesis

2 (bases 1 to 1372)

Gould, S.E., Upholt, W.B. and Kosher, R.A.

Dev. Biol. 168 (2), 438-451 (1995)

REFERENCE

TITLE

AUTHORS

JOURNAL

Figure 10: Syndecan-4 transmembrane domain from rat: M81786

Company Continues

gtcttggc agctctgatt gtgggcggcg tagtgggcat cctcttcgcc gttttcctga tcctgctgct ggtgtac SEQ ID NO:12

Reference:

ACCESSION M81786

LOCUS RATRYUDOCA 2452 bp mRNA ROD 16-JUL-1992

DEFINITION Rattus norvegicus ryudocan mRNA, complete cds.

ACCESSION M81786 g206822 NID KEYWORDS ryudocan.

SOURCE Rattus norvegicus Epididymal fat pad cDNA to mRNA.

ORGANISM Rattus norvegicus

Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;

Vertebrata; Eutheria; Rodentia; Sciurognathi; Myomorpha; Muridae;

Murinae; Rattus.

REFERENCE 1 (bases 1 to 2452)

Kojima, T., Shworak, N.W. and Rosenberg, R.D. AUTHORS

Molecular cloning and expression of two distinct cDNA-encoding TITLE

heparan sulfate proteoglycan core proteins from a rat endothelial

cell line

J. Biol. Chem. 267, 4870-4877 (1992) JOURNAL

Fig. 11: Glypican-1 (rat) GPI-Transmembrane Domain:

gccgcc actcgcccag agcctcacta cttctttctg ctcttcctgt tcaccttggt ccttgctgca gccaggccca ggtggcggta actgccc SEQ ID NO:13

Strawn Strawn

protein sequence:

ATRPEPHYFFLLFLFTLVLAAARPRWR SEQ ID NO: 14

Reference:

ACCESSION L34067 NID g506416 KEYWORDS glypican.

SOURCE Rattus norvegicus (strain New England Deconess Hospital) cDNA to

mRNA.

ORGANISM Rattus norvegicus

Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;

Vertebrata; Eutheria; Rodentia; Sciurognathi; Myomorpha; Muridae;

Murinae; Rattus.

REFERENCE 1 (bases 1 to 1737)

AUTHORS Litwack, E.D., Stipp, C.S., Kumbasar, A. and Lander, A.D.

TITLE Neuronal expression of glypican, a cell-surface

glycosylphosphatidylinositol-anchored heparan sulfate proteoglycan,

in the adult rat nervous system

JOURNAL J. Neurosci. 14, 3713-3724 (1994)

tcgcgacactgctcatcccag

ccatcacgactgctgacgccggcttctacctctgcgtggccaccagccctgcaggcactg

A Strain Commence

cc SEQ ID NO:15

Reference:

LOCUS HUMHSPG2B 14327 bp mRNA PRI 08-NOV-1994 DEFINITION Human heparan sulfate proteoglycan (HSPG2) mRNA, complete cds.

ACCESSION M85289 NID g184426

KEYWORDS HSPG2 gene; heparan sulfate proteoglycan. SOURCE Homo sapiens skin; colon cDNA to mRNA.

ORGANISM Homo sapiens

Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo.

REFERENCE 1 (bases 1 to 14327)

AUTHORS Dodge, G.R., Kovalszky, I., Chu, M.L., Hassell, J.R., McBride, O.W.,

Yi, H.F. and Iozzo, R.V.

TITLE Heparan sulfate proteoglycan of human colon: partial molecular

cloning, cellular expression, and mapping of the gene (HSPG2) to

the short arm of human chromosome 1

JOURNAL Genomics 10 (3), 673-680 (1991)

MEDLINE 91365376

REFERENCE 2 (bases 1 to 14327)

AUTHORS Murdoch, A.D., Dodge, G.R., Cohen, I., Tuan, R.S. and Iozzo, R.V.
TITLE Primary structure of the human heparan sulfate proteoglycan f

Primary structure of the human heparan sulfate proteoglycan from basement membrane (HSPG2/perlecan). A chimeric molecule with multiple domains homologous to the low density lipoprotein

receptor, laminin, neural cell adhesion molecules, and epidermal

growth factor

JOURNAL J. Biol. Chem. 267 (12), 8544-8557 (1992)

Figure 13: Syndecan-4 cytoplasmic domain from rat: M81786

Cgc atgaagaaga aggatgaagg cagttacgac ttgggcaaga aacccatcta caaaaaagcc cccaccaacg agttctacgc atga SEQ ID NO:16

Reference:

M81786 ACCESSION

RATRYUDOCA 2452 bp mRNA LOCUS

16-JUL-1992 ROD

William Towns

DEFINITION Rattus norvegicus ryudocan mRNA, complete cds.

M81786 ACCESSION g206822 NID ryudocan. KEYWORDS

Rattus norvegicus Epididymal fat pad cDNA to mRNA. SOURCE

ORGANISM Rattus norvegicus

Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;

Vertebrata; Eutheria; Rodentia; Sciurognathi; Myomorpha; Muridae;

Murinae; Rattus.

1 (bases 1 to 2452) REFERENCE

Kojima, T., Shworak, N.W. and Rosenberg, R.D. AUTHORS

Molecular cloning and expression of two distinct cDNA-encoding TITLE

heparan sulfate proteoglycan core proteins from a rat endothelial

cell line

J. Biol. Chem. 267, 4870-4877 (1992) JOURNAL